DOCUMENT RESUME

ED 353 449 CE 062 888

AUTHOR Byrne, Sandra; And Others
TITLE Real Jobs for Real People. An Employer's Guide to Youth Apprenticeship.
INSTITUTION National Alliance of Business, Inc., Washington, D.C.
SPONS AGENCY Department of Labor, Washington, D.C.
REPORT NO ISBN-0-88713-653-2
PUB DATE Jun 92
CONTRACT DOL-99-0-0454-98-106-02
NOTE 48p.
AVAILABLE FROM National Alliance of Business, 1201 New York Avenue, N.W., Suite 700, Washington, DC 20005-3917.
PUB TYPE Guides - Non-Classroom Use (055)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Apprenticeships; Articulation (Education); *Business Responsibility; Career Development; Educational Needs; *Education Work Relationship; Futures (of Society); High Schools; *Job Training; Postsecondary Education; *Program Development; *School Business Relationship

ABSTRACT

Based on the experience of the National Alliance of Business' youth apprenticeship program (the Quality Connection Consortium), this guide offers practical advice on how employers can begin a youth apprenticeship program that will serve their labor needs. It addresses the internal support that a business must generate and gives tips on choosing an educational partner. It includes a discussion of how to determine employee education and training needs and how to meet those needs through youth apprenticeship. The guide covers the three different types of skills that comprise a youth apprenticeship program: academic, technical, and employability skills. Approaches to classroom instruction and structured on-the-job instruction provided under the guidance of a trained mentor/advisor are discussed. Personnel policy issues such as pay, career ladders, recruitment, rotation as a part of on-the-job learning, liability, and certification are also addressed. Student recruitment, including strategies to overcome the negative image that vocational courses have in some high schools, and staff development are addressed. Finally, job placement for graduates is covered in the closing section of the guide. Appendixes provide a list of resources (government and private projects and councils with addresses) and 43 references. (KC)

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REAL JOBS FOR REAL PEOPLE

An Employer's Guide to Youth Apprenticeship

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REAL JOBS FOR REAL PEOPLE

An Employer's Guide to Youth Apprenticeship

Prepared by
The National Alliance of Business
June 1992

Activities of the National Alliance of Business are financed with public and private resources. *Real Jobs for Real People: An Employer's Guide to Youth Apprenticeship* was funded by the U.S. Department of Labor under grant #99-0-0454-98-106-02. Opinions expressed in this publication do not necessarily represent the official policy of the U.S. Department of Labor.

The National Alliance of Business builds partnerships with government, labor, and education to assure quality in the American workforce. The Alliance shapes social policies to improve education and strengthen job training, to develop versatility, and to instill values essential to success in the modern workplace.

The Alliance would like to thank Cynthia A. Fisher and Arno Kracht of BankAmerica, Bryan Wright of Sears, and Jocelyn Booth of Davea Career Center for the many hours that they put into the Quality Connection demonstration sites. Without their efforts, this publication would not have been possible.

This guide was researched and written by Sandra Byrne, Caricia J. Fisher, Timothy Lum, Garrison Moore, and Tana Petrich. Iris Moore and Hina Nassiri provided production assistance and Maureen Bozell served as editor.

ISBN 0-88713-653-2

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Executive Summary

Seventy-five percent of the jobs in the United States do not require a four-year college education. Most of these are good jobs with career potential. But, employers complain that the students coming out of high school and community college these days are not prepared to enter the workforce. Young people counter that employers won't give them a chance. They do find work, but they are usually confined to low-paying jobs. Businesses that can offer jobs with career potential prefer to wait until these young workers have acquired the maturity and appropriate work attitudes of a seasoned employee. This generally means that these young people float from job to job until they are in their mid-twenties, when employers are more willing to hire them.

In the present situation, both employers and young people suffer. There simply is no mechanism for linking these young people to employers. Sadly, what is most notable about this country's effort to smooth the transition from school to work, is the glaring absence of effort. The Commission on the Skills of the American Workforce report, *America's Choice: high skills or low wages!* stated: "America may have the worst school-to-work transition system of any advanced industrial country. Students who know few adults to help them get their first job are left to sink or swim."

Youth apprenticeship offers relief for employers who are frustrated with the quality of entry level job applicants but may be skeptical about the prospect of a school-to-work system arising out of nowhere. **Real Jobs for Real People: An Employer's Guide to Youth Apprenticeship** offers practical advice on how an employer can begin a youth apprenticeship program. It reflects the experience of the National Alliance of Business' youth apprenticeship program — the Quality Connection Consortium — and that of many other organizations working with employers and schools around the country.

With youth apprenticeship, employers take the lead in shaping the quality of their future workforce. Working with educators, employers develop curricula that meet their labor needs. Rather than passively accepting what the labor market has to offer, employers can become actively involved in improving the quality of the workforce at an early stage — when young people are still in high school. Youth apprenticeship is applicable to a broad range of jobs from those that require a good solid high school education plus training or to those for which more extensive education at a community or technical college are needed.

Youth apprenticeship places an emphasis on academics — reading, writing, math, science, and communication skills — as well as technical skills. A strong academic foundation is necessary to ensure that students will become life-long learners, capable of adapting to changing technologies and work-place demands. A distinctive feature of youth apprenticeship is that it links the learning that occurs in the classroom with the skill demands of the worksite. Lessons in the classroom incorporate applications to the worksite.

Most importantly, youth apprentices actually work. At the worksite, students begin to see the real world applications of their course work. They acquire the technical skills and the mature behavior that are expected of adult workers.

This publication guides employers interested in establishing a youth apprenticeship program that will serve its labor needs. It addresses the internal support that a business must generate, and gives tips on choosing an educational partner. It includes a discussion of how to determine employee education and training needs, and how to meet those needs through youth apprenticeship.

The guide covers the three different types of skills that comprise a youth apprenticeship program: academic skills, technical skills, and "employability" skills. Approaches to classroom instruction and structured on-the-job instruction provided under the guidance of a trained mentor/advisor are discussed. Personnel policy issues such as pay, career ladders or lattices, recruitment, rotation as a part of on-the-job learning, liability and certification are addressed also.

Student recruitment is discussed including strategies on how to overcome the negative image that vocational courses have in some high schools. Because youth apprenticeship programs are a new way of doing business for both employers and schools, issues of staff development are addressed. Teachers and supervisors will need guidance in adjusting to this new approach to learning and training. Finally, job placement for graduates — the ultimate test of success for youth apprenticeship — is covered in the closing section of this guide.

If you are an employer suffering from a shortage of skilled, entry level workers, then this guide is a "must" for you.

Part I:

Youth Apprenticeship: Real Jobs for Real People

What is "Youth Apprenticeship"?

Youth apprenticeship seems to have come out of nowhere and already the *Wall Street Journal* has featured it in a lengthy front page article, *Training Magazine* gave it the full cover story treatment, national politicians are pressing for it, and several states have legislation on the books. Yet most employers remain skeptical or puzzled. It sounds like an old fashioned and costly way to train, another government youth program being pushed by people who have never met a payroll. It is not. This guide explains why.

I hear and I forget, I see and I remember, I do and I understand

Chinese Proverb

Youth apprenticeship may be new — the first demonstrations are barely two years old — but it rests on a solid foundation of research and experience with work-related education and training both in the United States and abroad.

The youth apprenticeship movement aims to build a flexible system for the transition of students from school to jobs with career potential. It combines high academic achievement with active learning in real world jobs. The basic features of youth apprenticeship are agreed upon: It builds employer-sponsored training at the work site around a solid academic core curriculum and technical instruction for occupations that do not require a four-year college degree. It may or may not be linked to community colleges, depending upon the jobs in question.

Beyond that, a wide variety of approaches to youth apprenticeship are being tested in the twenty or so demonstrations now underway or in the planning stages. Progress to date is encouraging: Employers have been found to sponsor work-site learning, students have enrolled, schools have adapted to the various programs, and parents have provided encouragement. But these are still isolated efforts.

If there is any one component of the program that could determine success or failure, it is the role of employers. Youth apprenticeship cannot exist without the active involvement of employers. This publication aims to guide employers toward a better understanding of the concept and to give them some general advice on what it takes to participate in this new form of work and learning. It reflects the experience of the National Alliance of

Business' youth apprenticeship program — the Quality Connection Consortium — and that of other organizations working with employers and educators throughout the United States.

Skilled Jobs, Unskilled Graduates

What the employers are saying:

"We want people with good technical and social skills."

John Choulochas, General Motors. Wall Street Journal, October 22, 1991

For the past ten years, there has been a steady drumbeat of blue ribbon commission reports decrying the lack of educational preparation of young people, their problems entering the labor force, and the fearsome economic consequences of both. From *A Nation at Risk* in 1983 and *The Forgotten Half* by the W.T. Grant Foundation in 1988, to the Commission on the Skills of the American Workforce report, *America's Choice: high skills or low wages!* in 1990 — each has sounded the alarm.

Hardly a business day passes without another employer survey detailing young workers' lack of writing, math, and technical skills, and just plain common sense. According to a 1991 survey by the National Association of Manufacturers, the average manufacturer rejects five out of every six job applicants. More recently, a National Alliance of Business survey has revealed that more than half of small business owners have trouble finding entry level workers with even the basic skills of reading, writing and computation.

America has no mechanism for linking young people to the very jobs that keep a modern economy running. And this in a country where more than 75 percent of the jobs do not require a four-year college education. These are the jobs needed to keep the phones in order, electricity surging, hospitals and banks providing services, robots and production equipment in repair, and the copiers, computers and appliances humming. These are smart jobs, and they are skilled jobs. These are also the very jobs that our youth are currently unqualified to fill.

How does this translate economically? Youth unemployment stays consistently at three times the level of adult unemployment. For minority kids, it is often five times that of the adult level. As reported by the *Wall Street Journal*: "Male high school graduates now earn about half of what college graduates do, down from nearly two-thirds about 20 years ago." This same article cited recent Census Bureau figures: "The proportion of 18- to 24-year olds who work full-time but earn 'low wages' (defined in 1990 as $12,195) jumped to 43% from 23% in the past decade."

The jobs are out there, but young people are not prepared to fill them. Those high school graduates who do work earn low wages because of their limited productivity. Higher wages will only be forthcoming when their productivity is improved. But what explains young people's apparently stunted productivity?

Much of the blame for this situation has fallen on the schools, parents, and the young people themselves. The schools, it is said, lack standards, tolerate poor teaching, and manage their resources poorly. The parents are lax, and the students are lazy.

Yet many observers believe that current U.S. business practices contribute to the problem as well by minimizing the hiring and training of young people for good jobs. According to University of Texas researcher Dr. Robert Glover, business practices in this country discourage the transition from school-to-work in four key ways:

- Compared with their counterparts in Germany and Japan, American youth experience a 5-10 year delay in gaining access to significant occupational skill training.

What's in a Word: Is Youth Apprenticeship Really Apprenticeship?

Because the United States has a long established registered apprenticeship system, the use of the word apprenticeship for this new school-to-work program has caused some confusion. While both youth apprenticeship and traditional registered apprenticeship involve a combination of learning on-the-job and classroom instruction, registered apprenticeship and the score or so of programs loosely gathered under the rubric of youth apprenticeship differ in important ways.

Registered Apprenticeship. The primary goal of registered apprenticeship is to create broadly skilled trades workers through extensive on-the-job training. There are some 300,000 apprentices training in the traditional registered apprenticeship system, mostly in the construction and metal working trades. The federal and state governments regulate the system under the provisions of the National Apprenticeship ("Fitzgerald") Act of 1937. A majority of registered apprentices work under programs organized jointly by labor unions and management.

The training standards for registered apprenticeship programs are carefully spelled out and relate to specific occupations. Most registered apprenticeships are time-based and must involve at least one year (2,000 hours) of on-the-job training under the supervision of a journey level worker in that occupation; a majority require three to five years of job experience.

The programs also require "related" classroom instruction of up to 240 hours contact time per year. A few registered apprenticeship programs have arrangements to allow apprentices to receive community college degrees, usually by taking considerably more classroom instruction to meet college requirements not specifically related to the apprenticeable trade.

While there are a small number of high school students involved in "school-to-apprenticeship" programs, the average age of registered apprentices is 29 and most registered apprenticeship programs require that applicants be at least 18 years old before being formally admitted as apprentices.

Youth Apprenticeship. The primary goal of youth apprenticeship is to provide a means by which young people can make the transition from school to careers with a good future by linking education and structured on-the-job training. It is as much "apprenticeship for adulthood," to use Cornell Professor Stephen Hamilton's phrase, as it is apprenticeship for a trade. Youth apprentices generally begin learning on-the-job at age 16, and some classroom aspects of the program may begin as early as junior high school. Most employer sponsors insist that instruction be driven by the performance requirements of the career rather than based on time spent in the program.

Though carefully structured work-site learning is an essential element, youth apprenticeship most often requires more time in the classroom than at the work-site. It tries to find a balance among solid academic achievement, the general skills needed for any job, and specific job training. Most youth apprenticeship programs integrate academic and vocational education; they aim to improve the academic achievement of the students by teaching abstract concepts in the context of concrete, real world examples and experience. All insist that the program have a strong enough academic base to allow students, who choose to do so, to further their education.

Occupationally, youth apprenticeships developed to date cover a broader range of potential career paths than registered apprenticeship does. Demonstrations of the model are underway in health, banking, insurance, appliance repair, and other fields not traditional to registered apprenticeship, as well as in metalworking and in the machine trades where registered apprenticeship has long been established.

Since most youth apprenticeship programs are still in the planning or demonstration stages, they have yet to develop clear and consistent occupational or program standards. The challenge for all sponsors of youth apprenticeship is to develop consistent standards that are responsive enough to meet the needs of both young people and the changing labor market.

- Our best corporations are disengaged from the process of instructing and socializing their future workers.
- The delay in hiring high school graduates precludes a natural communication loop for employers to feed clear information back to schools about what skills are needed in the workplace.
- Perhaps most important, effort and achievement in school are disconnected from rewards in the workplace.

The contrast with other countries is most disconcerting. Employers and governments in Japan, Korea, Taiwan, Singapore, and the new tigers of Thailand, Malaysia, and even China and Mexico have all figured out how to handle the problem. These countries, each in its own way, signal to their young people that to stay in school and to do well is vital to their own future and that of the commonwealth.

But to many Americans the message has come across most clearly from Europe. For example, the German Marshall Fund, for 20 years an advocate for European style apprenticeship, has sponsored a steady stream of American legislators, educators, business executives, and other opinion leaders to look at school-to-work systems in Denmark, Switzerland, Austria, and most especially in Germany, where the "dual education" youth apprenticeship system provides employment opportunities for more than 60 percent of that country's young people.

But most observers also recognize that the European system, which is prone to track students, cannot be transported directly to the United States, where a strong belief exists that anyone can grow up to be the President, a doctor, or an engineer, and that no one should be denied the opportunity to try. A conflict exists between those who want to build a strong school-to-work system in this country to open up opportunities and those who believe that such a system tracks young people into a slot in life. Advocates of a new American youth apprenticeship system explain that it will expand students' educational and career opportunities and provide them a variety of learning environments and styles.

A New School of Thought

In an effort to meet the needs of employers and to find a way around young people's alienation from the general economy, the U.S. Department of Labor's Office of Work-Based Learning, the Pew Charitable Trusts, and others began research and demonstration efforts in 1990 to design a new American system of school-to-work transition. The National Alliance of Business, the Electronic Industries Foundation, the Boston Private Industry Council, the states of Maryland and Pennsylvania, and the Los Angeles Unified School District responded with local programs to design and test new approaches.

By 1992, the Massachusetts-based non-profit organization, Jobs for the Future, was sponsoring some 11 local demonstrations with small grants and extensive technical assistance. Drs. Mary Agnes Hamilton and Stephen Hamilton of Cornell University — he is the author of the widely respected *Apprenticeship for Adulthood* — have undertaken a project covering a series of occupations in Broome County (Binghamton), New York. A variety of other locally and privately sponsored efforts are also underway.

At the state level, the Council of Chief State School Officers and the U.S. Department of Labor are funding statewide organizing efforts in eight states. Oregon, Arkansas, and Wisconsin have state legislation on the books as well.

Variations on a Theme

The demonstrations underway so far exhibit considerable variation. The National Alliance of Business is testing two approaches in its Quality Connection Consortium — one for repair technicians with Sears Product Services and the Davea Career Center outside of Chicago, and the other featuring office occupations with BankAmerica for low-income students from Mission High School in San Francisco.

The Boston Private Industry Council is working with six local hospitals, Boston public schools and community colleges to develop a program for technical careers in health care. The State of Maryland is sponsoring a program linking high school and community college education with traditional registered apprenticeship. The State of Pennsylvania is developing a multi-site program for industrial workers. The Los Angeles Unified School District and a public-private organization called Workforce LA are attempting a large scale implementation in a variety of industries under the name of Youth Academies.

Evidence to date indicates that it is not feasible to make a wholesale transplant of the German dual system, which, essentially, requires a student to leave regular high school at age 16 and to enter a separate work-based learning program in which most of the student's time is spent at the worksite. Various attempts at this have failed to take hold and have had to be either modified or abandoned.

Although there are a variety of approaches to youth apprenticeship, none have emerged as national models. Drawing on the lessons learned from these efforts, the beginnings of a national system of youth apprenticeship may be forthcoming.

"Business is only as flexible as its employees. And too often employees' skills are neglected in planning business investments. In the long run, a company with state-of-the-art equipment and a workforce without state-of-the-art skills is not going to succeed. Therefore, the workforce skills, in my opinion, are critical to the success of any business."

Jerome Doubroff, manager of public affairs for Eastalco Aluminum Co. Reported in The Baltimore Sun, January 14, 1991

Youth Apprenticeship: A Working Model

Over the years, the National Alliance of Business has conducted extensive research and development to determine the best methods for linking work and learning. Through its Quality Connection Consortium demonstrations and its other research efforts, the Alliance has developed and tested a model for youth apprenticeship.

The Alliance has found that in order to be effective, youth apprenticeship must meet the needs of both employers and young people. For employers, it should provide knowledgeable, skilled, and flexible young workers; for young people, it should offer good jobs with career opportunities when they finish their schooling, and provide them with the skills to continue to learn throughout their lives.

A successful youth apprenticeship program is characterized by strong employer leadership, high academic standards, and a plan for integrating learning in the classroom with learning on the job. These characteristics are the guiding principles of youth apprenticeship:

- **A leading role for employers.** The unique feature of youth apprenticeship is the direct responsibility employers assume for a portion of their future employees' education; it offers them an opportunity to shape the quality of the emerging workforce to meet the requirements of a modern economy. One employer might enlist industry peers into a consortium in order to expand the job opportunities available to youth apprentices. Employers participate in all phases of the program. In partnership with

the schools, employers define the skill requirements for occupations (this is called job analysis), help shape the curricula, and hire and train students through structured on-the-job training.

- **High standards of academic achievement.** Youth apprenticeship is not merely a job training program. Employers increasingly want educated, not just "trained" employees. They understand that academic performance benchmarked to the highest standards in the world must be achieved by all students if this nation is to reassert itself in the global economy.

  As partners in this coordinated learning enterprise, employers and educators work collaboratively to ensure that the highest academic standards are maintained in such core subjects as math, science, English, history, and geography; they design ways to teach practical applications of reading, writing, speaking, and reasoning skills, as well as mathematical, technical and scientific principles. With a youth apprenticeship program, students' options after high school are actually enhanced because they have received an education grounded in both academic and technical skills. They may immediately pursue the career for which they have been preparing, continue their technical training, or move on to college.

- **Linking work and learning.** Youth apprenticeship programs demonstrate to students that there is a clear link between success in school and success on the job. Under the model, education and training in school and on the job have a common foundation. The education and employer partners jointly decide which objectives are best addressed primarily in the school setting, which in the work setting, and how the two learning components (school-based and work-based) can reinforce one another to ensure mastery of the learning objectives.

  Structured on-the-job training offers a unique opportunity for students to learn in a real world setting, while being guided by experienced workers and supervisors who act in a mentoring/advising role. People simply learn better when new concepts and tasks are introduced in a meaningful context. For students, learning on the job reinforces the need for academic achievement by demonstrating the concrete application of theoretical principles, and by showing the relevance of their academic studies to the work they perform at their jobs.

  Just as important, the experience students gain at the work-site teaches them important lessons about the adult working world — managing time, communicating effectively, serving customers and clients, and personal responsibility.

"Education is a bigger factor in productivity growth than increased capital, economies of scale or better allocation of resources."

David Kearns, Xerox, "The Forgotten Half," p. 29.

Benefits and Commitments

For youth apprenticeship to be successful, the partners need to play specified roles, and must be willing to make the necessary commitments. Although these commitments can be substantial, the resulting benefits for each group should make the efforts worthwhile. The following summarizes the benefits and commitments of each of the partners:

- **Employers.** Employers get an expanded pool of qualified applicants, a chance to recruit and screen potential employees, an opportunity to reduce turnover of entry-level employees, and a chance to influence curriculum development to meet business needs.

In return, employers assume a direct role in designing an educational and training program that suits their particular needs. This entails on-the-job training for participating students and continual dialogue with educators to ensure that students are progressing. In accordance with their standard personnel policies and the demand for workers, employers provide full-time jobs, as available, for students who graduate and successfully complete the program.

"This is in our self-interest. We can't survive without a well-trained workforce."

Bryan Wright, Sears Roebuck & Co.

- **Students.** For students, youth apprenticeship demonstrates a clear link between success in school and success on the job. They receive a quality academic education and paid part-time jobs that can lead to career opportunities in high-paying, high-skill professions. This experience builds self-confidence and allows students to develop potential contacts to broaden employment opportunities.

  In return, students are expected to maintain acceptable levels of attendance at school and on the job to remain in the program. They must also maintain a specified grade point average. There is not only an emphasis on high achievement in students' academic and technical skills, but also an expectation that students will build and strengthen work readiness skills, such as oral and written communication, punctuality and neatness.

- **Educators.** Schools benefit from improved attendance, higher academic achievement, reduced dropout rates, and improved employment rates

Benefits

For Students

- Get quality academic preparation.
- Earn income while learning.
- Gain actual work experience while going to school.
- Gain access to good jobs.
- Develop potential contacts to broaden employment options.
- Build self-confidence and experience success at school and work.
- Get personal attention for educational and personal needs and goals.

For Employers

- Obtain an expanded pool of qualified applicants.
- Gain a direct chance to recruit and screen potential employees.
- Evaluate potential employees in work settings prior to hiring.
- Develop a quick, reliable source of skilled labor.
- Meet contractual and legal obligations for affirmative action and equal employment.
- Improve the quality of life and skills in the community.
- Reduce turnover of entry-level employees.
- Influence curriculum development to meet industry requirements.

For Schools

- Reduce dropout rate, improve attendance, and increase enrollment.
- Increase student motivation to learn.
- Integrate hands-on work-related learning and academic instruction.
- Maintain higher outcome standards.
- Provide service to community.
- Serve local employers.
- Expand existing programs.
- Enhance reputation and public image.
- Improve placement/employment rate of graduates.
- Expand resource base.

For Communities

- Increase employability of "forgotten," neglected, disadvantaged or underserved populations.
- Facilitate individual growth and produce good citizens, skilled workers and contributing taxpayers.
- Reduce dependence on public support.
- Enhance community prestige and improve business climate.

of graduates, which results in improved community support for education.

In return, schools make a commitment to work with employers to develop improved curricula, using state-of-the-art learning strategies (such as active hands-on learning and teamwork) to maintain high academic standards, coordinate classroom instruction with on-the-job learning, and provide expanded career counseling for all students.

The Quality Connection Consortium

In the Fall of 1990, the National Alliance of Business formed the Quality Connection Consortium, a two-site youth apprenticeship demonstration program designed to develop and test a system of performance-based learning which formally linked the learning that takes place in school with employer training programs. The project sites were chosen because they offered the opportunity to test two very different foundations for building business-education partnerships to help young people make the transition from school to the workplace. The program entered its third year in 1992.

The San Francisco-based site, the Building on Achievement program, is sponsored by BankAmerica and Mission High School. This site allows for testing of the principles of the youth apprenticeship model in a low income, multi-ethnic neighborhood. This business-education partnership offers clear career opportunities for students, linked to a strong program of work preparation and career counseling.

The program offers classes on how to choose a career and on job seeking skills for freshmen and sophomore high school students. As students enter their junior year, they may apply for jobs at BankAmerica. The bank provides "real jobs for real people," meaning that the students are hired and trained to do regular part-time jobs at the bank as any other new employee would be. The only difference is that the work schedule cannot interfere with the student's school day.

At BankAmerica's offices, the students work in data processing, credit card collections, and other positions. Twenty of the first twenty-three students completed the program and graduated. About one-third decided to go on to college, and some of these students took up the bank's offer to keep their part-time jobs while they continued their studies. The students learn technical skills on the job; they receive an opportunity to gain full-time, well-paid jobs, but most important, according to many, they learn how to work among adults, as adults.

Building on Achievement includes a mentor/advisor program which involves bank employees, usually the students' supervisors, acting as role models for student employees. The mentor/advisor program helps the student employee become familiar with the corporate culture and supports high achievement both in school and on the job. The mentoring, along with the established responsibility of the student to maintain a specified school attendance rate and grade point average, reflects BankAmerica's commitment to encouraging high achievement and school completion.

With its focus on preparing youth for the cluster of service-oriented clerical technician jobs in the banking industry, the Building on Achievement program allows the testing of youth apprenticeship in the fast-growing service sector in which traditional apprenticeship programs are virtually nonexistent. The Quality Connection Consortium is continually assessing the effectiveness in both allowing disadvantaged youth to enter promising career ladders which they may never before have considered and encouraging inner- city minority youth to pursue postsecondary education.

- **The Community.** Benefits to the community include better educated youth, improved employability of young people, enhanced community prestige, and an improved business climate.

  In return, the community needs to provide financial and other support to allow the schools to make the necessary improvements in education.

The second site is located in DuPage County, Illinois, approximately 35 miles west of Chicago. Sears, Roebuck and Company and the Davea Career Center are working together on the Repair Technician project. Davea, part of the DuPage County Occupational Education System, serves students from 22 county high schools. This project tests an approach that builds on the existing vocational education structure and tests the youth apprenticeship model in the technical arena.

Sears has been experiencing a shortage of qualified repair technician applicants and projects this shortage to worsen over the next five years. In recent years, the company has had particular difficulty in recruiting technician trainees with the necessary academic preparation. Sears has found that the increasing sophistication of consumer appliances requires increasingly sophisticated repair technicians. Today's technicians require a much stronger grounding in science, math, and communication skills than ever before.

Sears teamed with the National Alliance of Business and Davea to build a new system for training repair technicians. Sears' technical writers and instructors from Davea developed a curriculum that combined physics, chemistry, math, electronics, and other sciences — all reinforced by structured on-the-job training at Sears and taught in the context of real-world applications.

The Sears-Davea partnership concentrates on making sure students have the underlying academic subjects needed to succeed in this field. Through an integrated curriculum of school-based courses and structured on-the-job training at Sears, the students learn basic academic skills, specialized math and science, and technical knowledge needed for the Sears Repair Technician II position upon graduation. The students have opportunities for higher order training which involves learning the repair and maintenance of more sophisticated appliances such as computers and video cameras.

The technical curriculum developed jointly by Sears and Davea curriculum specialists includes applied mathematics, basic electricity and electronics, measurement and instrumentation, basic mechanical systems and tools. The keystone of the academic program is the development of a technical bridge between the high school courses and the current Sears training program for adult repair technicians.

This bridge involves revisions of secondary school system curricula and some revision of the Sears technical training program, as well as sharing of instructional responsibility between the Sears staff and Davea faculty. Students receive structured on-the-job training in their junior and senior years of high school which teaches work maturity skills, safety, customer service, and use of tools of the trade, as well as the diagnosis and repair of appliances under the supervision of specially chosen and trained expert technicians.

The curriculum is designed to prepare students so that they may easily continue their technical education in college if they choose. Sears plans replication of the program at Sears' locations nationwide. This model could also serve as a prototype for other companies in the industry as well.

Building on the Traditions of School and Work

An employer may ask: "Aren't there a lot of school-to-work programs out there already?" The answer is: "Yes, and though none are as comprehensive as youth apprenticeship, for the most part, they complement, rather than compete with, the employer-led youth apprenticeship system." While the youth apprenticeship movement is new, it operates within the context of a long tradition of work-related education and school-to-work programs. Some examples are:

High School Vocational Education

Most high school students have to take at least a few vocational courses (e.g., typing, home economics, shop), but relatively few are involved in a comprehensive program that leads to a job in a specific field of study. Most observers see a natural connection between vocational education and youth apprenticeship so long as the program includes carefully structured on-the-job training and an emphasis on solid academic achievement.

"Many of our noncollege youth now exist in a kind of no-man's-land. The labor market presents serious barriers to these young people, who are typically denied entry into adult jobs until they are in their twenties, even if they have graduated from high school."

Stephen Hamilton, Apprenticeship for Adulthood: Preparing Youth for the Future, p. 2.

Tech-Prep Associates Degree Programs

Tech-Prep (short for "technical preparation") programs provide a focused curriculum in technical occupations for the last two years of high school and the first two years at a community college or technical school. Currently, the basic Tech-Prep design does not provide for on-the-job training, but it easily could. Like youth apprenticeship, this is a relatively new approach to improving student achievement and preparation for the workforce. Tech-Prep was incorporated in the 1990 revisions to the federal Carl Perkins Vocational Education Act.

Cooperative Education

This is a longstanding approach to work and learning used in high schools, community colleges, and four-year institutions in which periods of study alternate with periods of work experience. High school students usually attend school part of the day and work part of the day. They receive school credit for the work experience.

Unlike the youth apprenticeship model, cooperative education does not require that on-the-job training be structured nor directly linked to classes being taken in school. The academic side of the program often covers only the minimum needed to graduate from high school and, therefore, often attracts those students who are having trouble completing high school.

Youth Academies

This loosely linked movement has been underway for over 20 years. There are academy movements in Philadelphia, New York, Los Angeles and other school districts around the country. The program provides a focused education — "a school within a school" — emphasizing simulation of the work environment and applied academic instruction in broad occupational areas. Employers play a major role in curriculum development and often provide summer jobs for students. Many students go on to college for further education in their chosen field.

While the Academies model does not specifically provide for structured on-the-job training for students, it does provide many other components of youth apprenticeship, especially high level employer involvement and focused education.

JTPA Youth Programs

The Job Training Partnership Act (JTPA) program operates in 633 service delivery areas throughout the United States. JTPA requires that at least 40 percent of its basic funds be spent on educating, training, and placing low-income youth in jobs. These programs include high school students, dropouts, and low-income high school graduates. Some 300,000 16-21 year olds are served under JTPA, not including the separate summer jobs program.

There are no restrictions preventing JTPA-eligible high school students from participating in youth apprenticeship and, in fact, the U.S. Department of Labor-funded Maryland's Tomorrow youth apprenticeship program is geared specifically to JTPA-eligible students. Other operators report some difficulties in mixing JTPA students with other students in a single program because JTPA funds must be carefully monitored to ensure that they are not spent on services to non-eligible students.

Jobs for America's Graduates (JAG)

This program provides school-to-work assistance to some 21,000 at-risk and disadvantaged high school students in 350 high schools in 19 states. Using a specially trained staff of job specialists, JAG focuses on counseling, motivational work, and job placement as a supplement to regular high school education. Almost all JAG students graduate from high school or receive their General Educational Development (GED) certificate. Eighty percent get a job, enroll in the military, or continue their education in college.

Making the Decision: Questions Employers Ask

Youth apprenticeship is intended to serve the needs of employers as well as those of students. From an employer's perspective, the most distinctive feature of the new program is the need to provide carefully designed on-the-job learning opportunities for student workers. This may sound like an unnecessary headache, but for many employers it can be the solution to recruiting and training problems. The following answers some common questions about youth apprenticeship:

Is there a problem?

To determine whether youth apprenticeship could help your firm, consider the following questions: Do you hire workers with less than a four-year college degree? Are there problems recruiting qualified workers for key jobs? Do applicants regularly fail to meet entrance requirements? Are you experiencing high and costly employee turnover? Are employee errors or customer complaints too high?

Are there problems training new employees because they seem to lack the basic skills and knowledge needed to grasp the training? Are too many employees stuck in entry level jobs? Have you adopted new technology or work processes that require higher levels of reading, writing, and math skills than in the past?

If the answer is "yes" to any of these questions, there is a good chance that youth apprenticeship could be part of the solution.

How will it help my business?

The greatest benefit to employers is a steady supply of reliable and well-prepared workers. For most employers, hiring is an expensive hit-or-miss proposition. Youth apprenticeship is designed to reduce turnover, improve employee performance, and cut the payout for post-employment training courses. By carefully introducing young people to work while they are still in school, youth apprenticeship can actually reduce hiring and training costs over the long haul.

But there are other savings that come in a number of forms. Classroom instruction is shared with schools, reducing in-house training costs. Employer input into program design ensures that new employees have the foundation skills needed to take advantage of more advanced training. Finally, young people are fully oriented to your company before they join the firm full-time, saving time and lost productivity. (Some experts estimate that it can take up to a year for a new full-time employee, no matter what the previous experience or training, to become fully productive at a new job.)

What kind of jobs are we talking about?

The word apprenticeship sometimes conjures up images of traditional craft work, such as construction and the machine trades. But, almost any job that provides good career opportunities and does not require a four-year college education can be adapted to youth apprenticeship. Most of the jobs, in fact, will be in the service and high technology industries rather than traditional crafts.

The jobs for which young people can be prepared include skilled office occupations, health technicians, customer service representatives, supervisory and management trainees, environmental service workers, and the technicians needed to repair and maintain everything from computers to

copiers and high tech production equipment. The main requirement of the employer is to be realistic about the demand for full-time jobs in the field once the students complete their programs of study.

What will it cost?

Most of the cost of educating students is, of course, borne by the schools. However, there are costs to the employer associated with developing and conducting a youth apprenticeship program. Overall, the costs are primarily associated with staff time needed for planning, analyzing job skill needs, assisting in curriculum development, and ongoing monitoring of progress. The initial planning stages are particularly labor intensive. The basic rule is that the more effort devoted to careful planning, the less the costs and problems later. But, as yet, there are no hard and fast ways to estimate costs.

Generally, the more complex the job and the greater the involvement of the employer in developing new training techniques and curricula, the greater the costs. On the other hand, costs will be lower if a company already has a well-oiled training program and the partner institutions (schools, community colleges) can be actively involved in adapting to the current training activities. For instance, it will be much more costly to develop a program for highly technical positions which require extensive education and training beyond high school. An occupation that requires a combination of solid academic achievement, work-based training in a familiar field, and the involvement of the employer and the school will cost less.

Youth apprenticeship is designed "to help high school students see direct connections between school learning and paid employment. Apprentices are simultaneously workers and learners."

Stephen Hamilton, Creating Apprenticeship Opportunities for Youth, p. 1.

Because of the way we finance education in this country, school districts vary widely in their ability to support the costs of special teachers, curriculum developers, counselors, training equipment, and other parts of the program that you may wish to include in the effort. You will have to make an assessment of available public resources early on in the program.

To keep the costs down, experienced employers suggest a few simple rules: Don't get in over your head. Use available resources in new ways. Keep it simple — you can always make it more elaborate later. In-kind contributions of equipment or expertise are often as important as cash.

What about the costs of having trainees on site?

One of the basic principles of youth apprenticeship is that the trainees are productive while they are learning — that they have "real jobs." The experience of the school-to-work demonstrations to date bears this out. While it has taken careful planning to make sure that there is relevant work available for the apprentices, they have proved to be surprisingly productive and enthusiastic workers, according to the employers involved thus far.

There are a number of strategies to minimize the cost of hiring apprentices. Some employers transform existing part-time slots into trainee positions and fill these positions with apprentices as the slots open up. Others restructure work in such a way as to allow part-time work for trainees rather than hire additional full-time employees, which the employer would otherwise be forced to do.

The cost of supervising apprentices is another issue often raised by employers. The experience so far is that, aside from the limited costs associated with training mentors/advisors, the costs in a well-planned apprenticeship are not greater than those associated with the supervision of other new employees. In fact, a number of employers have noticed that the productivity and morale of experienced workers who act as advisors or mentors actually rise.

Do I have to hire everyone I train?

No. No employer can guarantee employment in advance. Variable demand is a fact of the labor market that cannot be predicted with precision. But the program should be designed so that it meets your own expected hiring needs for new workers or those of the industry in the area. If most qualified graduates who want a job don't get one, the program will attract few students.

Predicting demand will never be an exact science, but there are helpful hints. Since the student apprentices will be in the program for at least a couple of years, it is often possible to identify candidates well before their graduation. If you plan placement efforts well in advance of graduation, you do not need to make arrangements to find work or further education elsewhere. Take student attrition into account. Some students may decide the field is not for them and others will choose to continue their formal education directly after completing the program.

The best way to address variable demand is to attract a larger base of employers in the field so that no one employer feels the burden of taking more youth apprentices or graduates than can be reasonably accommodated. The program may start with a single employer, or a few, to keep the initial planning and design simple, but it is wise to expand the base as soon as the program is on sound footing.

Can small employers develop a program?

Yes. While it may be helpful for large employers to take the lead in the early stages, it is not necessary. Examples exist of small companies that have developed their own program in partnership with a local high school to meet their needs for a few apprentices a year. More often a consortium of small employers (or employers who need only a few workers in a given field), working with the right educational institution or third-party organizer, can create a highly successful program. Large size can even be an impediment to success. There are examples of major employers who couldn't work their way through their own internal red tape to develop a program.

What is the most important contribution an employer can make?

Patient, persistent, and responsible leadership is the most valuable contribution an employer can make. The other partners may become sidetracked by their own internal issues and may need the employer to keep the focus. Leadership can also be useful to the students. The evidence is pretty clear that if young people work closely with responsible adults, they will act like them too.

Part II:

Tips, Techniques, and Sage Advice

Getting Started: A Nine-Point Program

Once you decide that youth apprenticeship is appropriate for your company, consider the following course of action:

1. Define your employment needs.

What is the job or related set of jobs that the company is having trouble filling? Are there career opportunities? How many openings are expected each year? Are other employers having similar problems? What general level of education and training would be required for these jobs?

> **Note:** *Training is not always the solution to a performance problem. Youth apprenticeship alone cannot solve performance problems arising from poor employee selection procedures, inappropriate measures of employee performance, poor working conditions, inefficient work organization, equipment problems, or below market wages.*

2. Prepare a general business plan.

Keep it simple. In one or two pages, describe the basic concept of your youth apprenticeship program. Outline the estimated labor market demand (for your company and for the industry) in the occupational area being considered, the general roles of necessary partners and stakeholders (i.e., those outside and inside the company with whom you will need to work), and a rough description of how the program would work. A succinct business plan will also help to organize ideas and serve as the initial marketing piece for the youth apprenticeship program.

3. Involve the internal stakeholders.

Before going outside of the company to look for partners, it is advisable to secure support for the program from key players inside the company. Success in solving a performance problem requires agreement of these "stakeholders" to work with you to solve the problem. If stakeholders do not agree about the nature of the problem or are not involved in finding the solution from the beginning, the effort will likely fail.

Stakeholders may include top executives, key individuals in the personnel and training departments, front line supervisors, internal customers (i.e., those who receive the product or service for the next stage of production), and the employees in the affected job area itself. The list will vary from

"Noncollege-bound youth who complete high school have been saddled with the thoughtless expectation that they will readily find their place and need not be of further concern to the larger society."

The Forgotten Half, Interim Report

company to company, but includes anyone who can affect the course of the effort. It is important to be both flexible and persistent in bringing the internal players on board.

4. Organize the partnership.

Generally, employers will need to take the lead in organizing a formal partnership with other employers, local high schools, community colleges, or technical schools, while taking into consideration the nature of the jobs, the number of positions available, and other factors. This may be done either directly or through an intermediary. Many school districts have business-education offices, which may be a good starting point if you decide to work directly with the schools. Local vocational educators or Tech-Prep administrators may also provide valuable initial assistance.

As an employer, you may wish to offer staff time, training equipment, meeting space, favorable publicity, or other useful contributions to the effort. Remember that most schools are hard pressed for funds these days and that even if funds may eventually be available, the allocation of public money often involves lengthy budget cycles and approvals by elected officials. Nevertheless, the public partners will have to provide something of value to the development of the program.

At an early stage of the process, you will need to involve the various stakeholders within the school system — district administrators, the school board, and the local high school principal. If the jobs are in a technical field requiring education beyond high school, you may want to involve the local community college or technical school as well.

Most observers agree that it is wise not to ask for too much too early. Since youth apprenticeship will most likely be an unproven idea in the local area, it is advisable to start small and build on each success as you go along. It may be best to begin with a single school, and one or a few employers, even if you hope to involve many employers in a multi-year program over the long run.

The Value of a Third Party

Experience in business-education partnerships, generally, and in youth apprenticeship, specifically, shows that a "third party intermediary" can be quite useful. Besides helping to maintain the focus on the program by keeping up-to-date on the most current youth apprenticeship findings and experiences, the intermediary can also serve as a resource to the partnership as it develops and implements its program.

Locally, the Private Industry Council (PIC), the Chamber of Commerce, or other local business-education partnership organizations may have the expertise to facilitate the process. On the national level, the National Alliance of Business is experienced in the processes of coalition building, youth apprenticeship development and implementation, labor market and job analysis, and program assessment.

Because intermediary groups tend to play a facilitating and coordinating role, it is essential that they have access to the business community, and that they be respected within the education community. In some cases, it may also be important for them to have access to major philanthropic and government funding sources.

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5. Find someone to take the lead for the long haul.

Youth apprenticeship is not a magic bullet. It requires long-term commitment from employers, schools, students, and others. This calls for someone with patience and persistence to take responsibility for moving the project through the various stages of development and implementation. Find someone within the company who has both the responsibility and authority to keep things moving over time. It may also be necessary to find an outside agency or individual willing and able to act as an intermediary among all of the parties.

6. Play to strengths.

The relationship among partners depends on trust and respect for the others' expertise. Each of the partners contributes its strengths and abilities; playing to those strengths solidifies the partnership. Used properly, these strengths and abilities contribute to a quality program that is beneficial to all, where the sum is, indeed, greater than its parts.

The development of this partnership generally requires a significant change from the way the partners have worked together in the past. Historically, when businesses participated in education advisory councils, they were asked for their input, for example on curriculum, and were then asked to "bless" it after the school finished its work. Or they were asked to provide work experiences for students, but without a real understanding of the students' complementary school work or without any communication with the students' teachers.

The openness between partners required by this type of initiative often means a radical shift in culture in both organizations. Typically, neither employers nor educators have a clear understanding of the other's way of doing business. Spending time in one another's environment is a helpful way to cross existing boundaries to gain insight and become "bi-lingual."

"America may have the worst school-to-work transition system of any advanced industrial country. Students who know few adults to help them get their first job are left to sink or swim."

America's Choice: high skills or low wages! , (Commission on the Skills of the American Workforce)

7. Determine resources needed and available.

You will need to develop a budget outlining the resources (both in-kind and funding) necessary for getting started and for development and expansion of the project over time. Careful planning can maximize available resources. "In-kind" contributions, such as staff time, training or meeting space, loaned equipment, and specialized expertise, are far easier to come by than cash in the initial stages of the project. Take advantage of these.

8. Establish goals and outcomes.

Measurable goals depicting a shared vision of a quality program for the students, educators, and employers should be explicit and written down. This enables the partners to forego their own particular agendas and focus only on the group's common agenda.

Examples of goals for a youth apprenticeship program are: To improve student learning through a system of performance-based applied academics; to build a strong partnership between business and education which will work toward dissolving the barriers between school and work; and to provide high school students with the skills necessary to facilitate the transition between youth and adulthood, as they enter full-time employment.

Examples of the corresponding outcomes that can be attained by accomplishing these goals of youth apprenticeship are: The establishment of collaborative learning situations in which both schools and employers provide instruction responsive to the performance criteria and relevant to

either the school or work setting; the development of a learning environment for students at the work-site that reinforces their academic achievement in school; and the provision of employment for students upon successful completion of the program and graduation from high school.

9. Get started.

Don't wait for the whole project to be planned out to the last detail. Experience shows that enthusiasm for the project may die before the plan is done. As long as you are clear about the long-term goals of the project, it is best to forge ahead with the project and fill in the blanks as you go along. The program will require continuous planning in any event. Besides, it is advisable to begin small (i.e., with a limited number of sites to build a sound program), before expanding the program to many sites since managing these programs is very labor intensive, particularly at first.

Instructional Design Issues:

Weaving the Fabric of Learning at School and Work

Instructional design is not rocket science, even though some curriculum specialists and instructional designers may make it seem that way. Most of it is common sense, but designing the curriculum takes careful thought and preparation. You need to know what a good worker does and then figure out how young people can learn to do the same. The curriculum should meet the needs of both employers and students.

By emphasizing active learning — rather than passive instruction — set against clear standards of achievement, youth apprenticeship requires

Roles for the Partners

Students
- Stay in school and graduate
- Become engaged in active, hands-on learning
- Complete core curriculum
- Perform well in a part-time job, which provides structured, work-based learning

Employers
- Define the skill requirements for jobs
- Provide curriculum guidance to the schools
- Provide structured, paid on-the-job training for students — real jobs for real pay
- Encourage students to stay in school and do well
- Provide full-time jobs, as available, for students after graduation
- Provide training for teachers, as appropriate

Educators
- Develop core competency curriculum
- Provide career counseling for students
- Use state-of-the-art teaching strategies — such as, more active, hands-on learning
- Provide curriculum training for teachers
- Work with employers to coordinate classroom instruction with structured on-the-job learning

Third Party Intermediary
- Provide initial coordination of partners
- Provide access to business community and public/private funders
- Provide research expertise, especially in the areas of work-based learning
- Provide range of technical support services to local sites
- Disseminate information among participants
- Publicize importance of improved school-to-work transition programs

employers and educators to take a new look at how they have traditionally educated and trained young people. This section provides some general guidance about the nature of the work that needs to be done. More detailed assistance should be available from local schools, colleges, or professional instructional designers.

Integrated Learning: The Genius of Youth Apprenticeship

"I just don't get it. What does this have to do with the real world?" Does this sound like a familiar refrain from a high school student struggling through algebra or chemistry? To many students, especially those who do not plan to go directly to college, the subject matter in school seems inapplicable to the real world and irrelevant to their post-high school plans.

Youth apprenticeship is about active learning. Some people learn in one way, some in another. Many students simply do not learn in the manner that is traditionally associated with high schools. Extensive research demonstrates that a passive learning approach within the sterile confines of the classroom is not effective for many people — young or old.

Youth apprenticeship modifies the conventional assumptions about education by emphasizing a "learning by doing" approach. Students take responsibility for their own education because their learning is performance-based. As they demonstrate their understanding of a concept and their mastery of its technical application, they progress through the curricula taking on new challenges.

Youth apprenticeship aims to prepare young people for a productive career by integrating basic academic knowledge with technical skills and by acclimating students to appropriate work-site behavior. The three areas of youth apprenticeship instruction should be taught as a single integrated program in which skills learned in the classroom are reinforced on the job, and vice versa.

Careful planning and extensive dialogue between the employers and the educators is necessary to design a comprehensive and integrated instructional design. Each instructional area incorporates subjects that are learned in the other areas. On-the-job training is a crucial method of instruction that enables students to integrate the variety of lessons and skills learned in all content areas.

Sometimes there is no clear distinction among the different types of skills needed for most jobs. Basic office skills such as how to handle telephone calls, take messages, forward calls, etc., would be considered non-technical skills for some jobs, but for jobs that center on telephone use (e.g., bank collections), these would be considered technical skills.

Where possible, lessons in the various instructional areas should be designed to run a parallel course. Topics that are introduced in the academic curriculum can be reinforced in the technical curriculum. For example, students might study Ohm's Law in an applied physics class and then explore its applications in a technical class working with electronic circuitry.

Similarly, in an English class, students might learn how to write situation reports or practice oral presentations. As concepts and themes recur in different instructional arenas, students begin to appreciate the complementary nature of the curricula because what they are learning in class applies to what they can do outside of class.

"Workplace training makes it more likely that workers will come to understand the big picture: how context shapes the task and how contingent factors must be integrated into performance. Broader skills enable workers to make larger contributions to the productivity of the firm and also to go on through life acquiring new skills."

Michael L. Dertouzos and Robert M. Solow, Made in America, Regaining the Productive Edge, MIT Commission on Industrial Productivity, MIT 1989

Standards of Job Performance: The Beginning of All Design

As the old saw says: "If we don't know where we are going we won't be happy when we get there." It is important to develop standards of performance for the fully prepared worker. The biggest failure in the development of education and training programs — in the private sector as well as in public education — is the failure to take a careful, realistic look at the precise skills, knowledge, abilities, and work habits needed for expert performance in the occupation under consideration (called *job analysis* by the specialists). Don't assume you know what needs to be learned.

"I believe in myself more now because I've been able to do the kind of work that is supposed to be only for adults. I'm proud that I'm working for the bank."

Mayra Montoya, 17, Participant in BankAmerica program

It may be the case that industry-based associations have already conducted a job analysis that defined the standards of performance and skill requirements for workers within your industry. Using job analysis, industry-based organizations often develop curricula that outline the skills that workers should master and suggest course offerings for attaining those skills. Much of the work of job analysis may have already been done — there's no need to reinvent it.

While job analysis may sound difficult, there are a variety of user-friendly methods for doing it. "Developing A CUrriculuM" or DACUM, was developed in Canada a number of years ago to ease the job analysis process. It is now widely used as a starting point for determining the performance required for a job or cluster of jobs. Essentially, DACUM brings together expert workers and supervisors to review the requirements of a job in a "focus group" type setting over a two- or three-day period. Useful for youth apprenticeship purposes, the group should include representatives from a variety of employers unless the youth apprenticeship is being customized for your company alone.

The following are basic steps in conducting job analysis:

- Supplement the focus group with observations and interviews of workers on the job.
- Interview other stakeholders to determine projected needs as well as current demands.
- Determine how an individual worker's job fits into your overall production and process flow. Consider that a worker will probably have to be part of a larger team effort and that responsibilities among workers may become increasingly interchangeable.
- Look beyond the entry level position. Ideally, the student apprentice will be trained to take on more complex job responsibilities so that he or she can potentially become a long-term employee of your firm. Identify the skills, knowledge, and experience that will be required by emerging occupations — this will prove to be beneficial to employer and employee alike.
- Be careful to look for the underlying academic knowledge and work habits that exemplify the expert worker. Job analysis is not simply task analysis. Success in modern jobs often requires as much grounding in theoretical knowledge and the practice of specific behaviors as it does technical skills. These criteria must be spelled out in order for youth apprenticeship to be effective.

The Basics

The youth apprenticeship model was developed to address all the academic knowledge, technical skills, and behaviors (sometimes called employability skills) needed for expert performance. It is necessary to examine each of the major content areas individually so that each is covered adequately.

Academic skills

Because of the increasing knowledge base required for most modern jobs, youth apprenticeship places strong emphasis on academic achievement. The program should avoid trade-offs between academic education and technical training or work experience as sometimes happens in many traditional high school vocational or "general education" programs. Youth apprenticeship should not force students to choose between training for a job and participating in a strong academic program.

The core academic subjects should include English, history, geography, basic math and sciences. Depending on the career under consideration and the results of the job analysis, the program may also call for higher level math, science, and communication skills course work that many non-college bound students do not now take.

Technical skills

These are the skills required for a particular occupation or set of related occupations. Employers should play a leading role in developing the curriculum for the technical skills. Learning technical skills may involve the use of special equipment, techniques, and processes not provided in a general academic education. Some, such as computer skills, keyboarding, or reading wiring diagrams, may be applicable to a broad range of jobs.

Technical skills may be taught by the employer on site, in a classroom setting, as a structured on-the-job experience where the student is guided by a mentor/advisor, or in high school vocational classes. With school districts across the nation being forced to cut back, it is likely that the employer will have to bear more of the costs associated with developing the technical skills curriculum and providing the needed materials and equipment.

Employability skills

These are general habits and behaviors that apply to the world of work. They include: how to fill out an application and conduct a successful interview, dress, talk and act on the job, work with others, and other behavior necessary for success in the workplace. This may seem second nature to the adult employee, but they are often a mystery to young people who have had no exposure to the workplace or the process of finding and keeping a job.

Employability skills can be taught and reinforced in regular classes, in one-on-one or group sessions with guidance counselors, and on the job with mentors/advisors. The employer and mentors/advisors can play a particularly powerful role in providing example and encouragement in reinforcing employability skills.

"Currently, the prospects for U.S. high school graduates who decide against college are bleak. As one parent in Wisconsin puts it....'We've got two very clear tracks right now — college prep and 'nowhere prep'."

Training Magazine, April 1992

"America's future prosperity depends on the energy, flexibility, and creativity of an able workforce. If our young people have a responsibility to prepare themselves well for the demands of work and adulthood in the 21st century ....policymakers, employers, and community leaders have a corresponding obligation."

The Forgotten Half, Interim Report, p. 19

Organizational Tips

Integrated learning may sound like a complex concept. Establishing some key organizing components for each instructional area will facilitate the process of integrating the curricula. The following describes these organizing components:

1. Job analysis. Conduct a performance analysis of jobs. This entails a systematic look at the precise skills, knowledge, and work habits required for expert performance in a particular job or workplace. It may not be necessary to start from scratch. It is possible that much of this work may have already been done by an industry peer or by an industry association. But it is important to check what others have done against your real needs.

2. Learning objectives. What standards must be achieved to demonstrate proficiency at a task or knowledge of a subject? The learning objectives are derived from the job analysis.

3. Assessment. How will you know if the student apprentice has achieved the learning objectives? What tools will be used to judge performance and proficiency for each objective? Can proficiency be best demonstrated in practice rather than through paper and pencil tests? The job analysis should guide the development of the appropriate content and methods of evaluation.

4. Course modules. You will need to develop some order of learning and break the subject matter into parts, or learning modules. What is the order in which skills need to be learned? Can some skills be learned in any order? What topic or subject is going to be covered within a particular time frame? Much of what needs to be learned may already be available and organized into modules. Don't reinvent it.

5. Methods and materials used in instruction. Determine the type of instruction — lecture, hands-on, workbook activity, lab activity, or on-the-job training — useful for attaining each objective. You should determine which books, equipment, tools, and materials are to be used. Are these available? If not, how will they be obtained?

6. Teaching personnel, organization, and location. Learning may occur on-the-job, in the high school classroom, in a training room at the work-site, on a computer, or at an alternative site, such as a vocational center. You will need to identify the teacher/faculty member from the school, the instructor in the training program, and the employee working with the student in the on-the-job training experience.

7. Time frame. Approximate the amount of time required to complete a training module for most students, (for example, 25 hours of classroom instruction and 100 hours of on-the-job training). This will help organize the presentation of information over the course of the program. Remember, however, acceptable performance should be fixed, and that whenever possible, the time frame should be variable to allow students to master fully the subject at hand.

The Elements of Design: Key Points to Consider

The following briefly describes some key points to remember in designing a youth apprenticeship program. As noted above, more detailed assistance should be available from local schools, colleges or professional instructional designers.

Objective evaluation of learning

Schools often evaluate how students perform by using "normative" tests — or "grading on the curve" — where students are compared to each other rather than tested against a fixed standard of what should be known. Under youth apprenticeship, assessment should evaluate what is actually learned rather than how a student rates vis à vis his or her peers. The technical term for such assessment is "criterion-referenced" testing.

Teachers and work supervisors alike need sound methods for objectively evaluating the skills of youth apprentices. Job analysis will help to define the *learning objectives* — the standards that must be achieved to demonstrate proficiency at a task or knowledge of a subject. The importance of using assessment instruments that are based on these learning objectives and described in measurable terms cannot be overstated.

Since technical instruction may take place at school, on the job or at both locations, it is particularly important to develop assessment instruments or evaluation methods that are acceptable to all partners. The evaluation methods may include observations of students performing job tasks or simulations.

Assessing employability skills can be more subjective. To ensure fairness, rating forms may need to be completed by several adults who come into contact with the students — teachers, guidance counselors, job supervisors and mentors/advisors. However, much of the behavior (e.g., attendance) can be objectively assessed, and should be wherever possible.

On-the-job training

The essence of a youth apprenticeship program is that it includes structured on-the-job training under the guidance of a mentor/advisor. Studies have shown that, to provide full understanding and mastery, learning on the job is more effective and efficient than traditional classroom learning.

This training might take the students through a rotation of jobs to give them a better understanding of the overall business and how the job they are being trained for fits into the rest of the organization. It is important to make this as easy for supervisors and mentors/advisors as possible. Training for the mentors/advisors in the use of simple checklists that certify the students' mastery of job skills is recommended. This allows consistent apprentice learning and reliable certification of skills.

Because the nature of work often varies from day-to-day and season-to-season, the order of on-the-job learning will vary. The checklist of competencies to be obtained by the learner and certified by the mentor/advisor allows learning to occur continuously without disrupting the flow of work.

Flexible time frame

The standards for acceptable performance should be fixed, which means the time frame for learning will be variable to allow students to master fully the subject at hand. The teaching of academic skills will probably remain largely semester based. However, if world-class standards are implemented for math, science, English, geography and history, then presumably

"The argument is not that abstractions should not be taught; it is that they will be better understood when instruction uses knowledge that students bring with them to the task and when their meaning is explored in detail within specific situations to which they apply and which are meaningful contexts to the student."

Sue Berryman, "Importance of contextual learning"

students will take different lengths of time to meet the standards.

Because the technical training should be performance-based, the time frame is going to vary among students. Although suggested or average times could be specified for each training module, these should not dictate how long the technical training takes in actual practice. This is true for both classroom and on-the-job technical training. On the job, the mentor/advisor, along with the trainee and perhaps also the supervisor, must decide when a trainee is ready to demonstrate that he or she can perform the specific task he or she has been practicing.

Sequences of course modules

It is helpful to break the instruction into a series of more or less self-contained course modules, which taken together add up to the full body of skills, knowledge, and behaviors necessary for expert performance in the field of study. These modules should be arranged sequentially so that as the students successfully complete one, they move on to the next. However, in some cases the order of certain modules may not be important — and due to limited equipment and space, the number of students taking the module simultaneously may have to be limited. Ideally, the technical and academic skills courses will be closely integrated and reinforce each other in each module so that the theoretical concepts and applications can be taught in both settings.

"....intelligence and expertise are built out of interaction with the environment, not in isolation from it."

Sue Berryman

Methods of classroom instruction

The methods used for classroom instruction should reflect the practices of high performance work organizations. For example, since teamwork is an essential component of many jobs, then teamwork should be one of the methods used to teach both academic and technical skills. Or, if computers are used on the job, then technical instruction should be given using computers.

Location of instruction and training

In youth apprenticeship programs, decisions must be made as to which modules will be taught in school and which at the work-site. At the work-site, technical instruction can be learned through different modes — traditional classroom instruction, simulation, computer-based learning systems such as electronic performance support systems, or through structured on-the-job training under the guidance of a mentor/advisor. Employers are not expected to create training institutes or develop new computer software for job simulation; the best form of learning will occur *on the job.*

Academic skills would normally be taught as part of the regular high school curriculum. However, teachers and employers should develop applications of academic lessons to the technical realities of the worksite. Guest instructors from the job site may also be used to demonstrate the real world application of academic subjects. It may be possible for much of the technical training to be conducted in the school setting, particularly if it is at a vocational or career center.

Articulation issues: Giving credit where credit is due

Youth apprenticeship requires careful collaboration among all organizations involved to ensure that the student receives the full credit for what he or she has learned without unnecessary duplication of course work. The educational term for this is "articulation." In youth apprenticeship programs, articulation refers to coordinating curricula and credit between the high school, the workplace, and, where necessary, the community college.

Because of institutional differences, learning that occurs in one place is often not recognized in another. The subject raises some significant issues for the partners' consideration:

- **A process for assigning credit, or value, to the student's workplace learning should be developed.** While the learning objectives for all course work should be carefully defined for academic credit, the structured on-the-job learning provided by the employer will require especially thoughtful assessment if it is to be provided for school or program credit.

- **The high school course offerings should meet the community college's objectives.** Community colleges often have standards and requirements for course work that differ from those of high schools. It is important to involve the community college from the outset to ensure that what is being taught in the high school meets the standards of the college. If curriculum writers from outside the education system are involved, they should be involved in these discussions, too.

- **Students may accumulate community college credits even if the youth apprenticeship program does not lead to an associate's degree.** High school or work-based training may be of a high enough level to be eligible for community college credit. Thus, even if youth apprenticeship is not formally linked to a community college program of study, arrangements may be made for the granting of credit for individual courses. Recruiters should be ready to promote the value of articulated community college credit, i.e., the options that will be available to students many years after they complete high school.

Personnel Policy Issues

Since youth apprenticeship involves recruiting, hiring, and training of young people in real jobs, there are definite implications for your personnel system. These are not insurmountable, but they are real and they will vary from company to company.

Compensation

In general, youth apprentice employees should be paid at the level of their productivity compared with other employees and in line with the demands of the labor market. Wages need to be high enough to attract young people from alternative part-time jobs or other high school pursuits. Ideally, there would be a series of clear pay increases granted as knowledge and skills are attained.

If students are only participating in job training classes, they don't necessarily have to be paid. If they are productive workers, then they should be paid according to normal procedures. Although it may be legal to pay student workers less than the minimum wage, it is unlikely that students will stay with a program that consistently pays below what they can get in the open market.

The Availability of Jobs for Participating Students

Employers should try to make available part-time jobs during the school year and the summer, as well as full-time employment possibilities after graduation. After all, the on-the-job aspect of the program contributes to its uniqueness and is critical to the students becoming the kinds of employees businesses are striving to hire.

In a youth apprenticeship program, the student's job is more than a "work experience." It is both a structured way to learn skills and an opportunity to learn *how* to work. The jobs that employers offer students should be "real" and provide chances for growth and promotion if the student is successful. An employer's responsibility includes developing a career track and discussing it with students as would be customary with any other potential employee.

The Qualifications for Student Workers

Once the students are in the program, the partners should establish the criteria students must maintain to continue participating in the program. Measurable standards, such as grade point average, school attendance, and demonstrated technical proficiency have been used in successful school-to-work programs. It is suggested that some discretion be used in applying these criteria. For example, a student who has performed well at work should not necessarily be terminated if he or she has a grade point average slightly below the minimum required for one grading period.

Accommodating On-the-Job Training

Classroom instruction will usually involve collaboration between schools and employers, but the design of on-the-job training will rest largely with the employer. Supervisors and mentors/advisors need to be sold on the value of apprentices and the training and supervision of apprentices *needs to be included in their job descriptions.* It should also be built into their performance evaluation system. It is recommended that mentors/advisors be specifically selected for the task based on their interest and ability to work with young people.

Job Rotation

It is often useful to rotate students through various aspects of your operations in the course of their study so that they can get the larger picture of how the company operates and to show how their work will link to other parts of the company. For example, Sears has students spend time in the parts department before they actually begin repairing equipment. The health professions and management traineeships have used job rotations for decades.

Rotation is important to the quality of training, but it can raise some complicated personnel and compensation issues. Students may need to be given special "trainee" or other status to allow them to move from one job to the next without having to resign from one position in order to move on to another position.

Career Ladders or Lattices

There has been much talk about the "glass ceiling" — that invisible barrier that prevents members of certain groups from rising above a certain level within the company. In fact, in many workplaces there are a whole series of strata that present effective barriers to promotion. Often the only way to get a promotion is to change employers. This is costly to the employer and the employee alike because of the expense of training new workers hired from the outside and the lost productivity of new workers as they learn the ropes.

For youth apprentices who anticipate two to four years of experience in various positions with the employer, the employer needs to think through the potential progression for employees, from entry level on up, and to determine the full range of skills, knowledge and abilities needed at each level. "Succession planning" has long been used at the managerial and professional levels, but it can be equally useful for front line workers.

One electrical distributor has designed jobs so that most employees begin in the warehouse where they can learn the full product line. They then are promoted out to the stores where their expert knowledge of the product lines makes them much better at providing customer service. From there they can move into supervision and management, with preparatory training available each stage of the way. Since the skills needed for each stage of the progression are clear to student employees as well as the employer, employees can take the training on their own initiative and on their own time knowing that it will be useful for their careers.

In many organizations, the line of progression is not a simple ladder but a variety of options at each stage. The term "career lattice" has been used to describe the pattern of progression in such organizations.

"At present, knowledge and skills are taught in a setting — the formal classroom —very unlike settings at work or in real life. This teaching out of context impedes the transfer of school learning to settings outside the classroom."

Sue Berryman

Getting There: Transportation Issues

Since the youngest apprentices may not have transportation of their own when they enter the program, it is necessary to look at this issue. It may be as simple as making sure they are familiar with the local public transportation system or that they have car pool arrangements with other trainees. If the trainee is classified as a student while working for you, the school may be responsible for the student's transportation and related liability questions. It is best to avoid this situation. If possible, for personnel purposes, the traineeship should be treated as separate part-time employment or as any other part-time student job would be.

Recruitment and Corporate Policy

Since the trainees are considered regular employees by the company, the recruitment of students for the positions should follow the same procedures as the company normally uses, except that participation in the school-based program becomes a condition of employment.

Working with Unions

In some cases, unions are stakeholders and should be invited, at the outset, into the process of planning the program. Youth apprenticeship can complement union efforts to upgrade the skills of their workers and ensure that workers are better prepared for organizational changes in the workplace.

Liability

"Business is an integral part of the human resource system, and will be even more so in the future"...

Business Role in State Education Reform, p.9

There should be no special liability issues regarding student apprentices unless they are working with equipment or under conditions that normally require the employee to be over the age of 18. There are 17 occupations designated as "hazardous" by the U.S. Department of Labor. Waivers can be obtained for eight of these occupations; however, if the state laws regarding a particular occupation are more stringent than the federal law, the state regulations apply. Restrictions may be waived for student workers who are under the supervision of an experienced worker and who are part of a recognized instructional program. Questions about liability issues and hazardous occupations should be directed to the state board of education's vocational education department.

There may be insurance issues that arise from having younger workers operating certain machinery and equipment. Insurance companies should be consulted to clarify the policy implications of youth apprentices and the nature of their work.

Certification

One of the key responsibilities of the employer is to certify the skills learned on the job. As a general rule, sets of skills are certified (e.g., how to use computer software, blueprint reading), not jobs. The employer should provide clear documentation of skills attained. It is also suggested that certification be integrated with routine performance evaluation.

So long as certification is not an absolute standard for hiring, this should raise no special personnel issues regarding "adverse impact" on the ultimate employment of the graduates. However, in the interest of fairness and effectiveness, it is recommended that certification be handled carefully. Some employers may use employees other than the supervisor or mentor/advisor to certify skills obtained.

Student Recruitment Issues

Regardless of how much hard work the partners do to create a premier youth apprenticeship program, the true test is whether or not students will enroll in it. Overcoming the stereotypes attached to any high school program that does not appear to be "college prep" is no mean feat. In our society, the message that college is the only option for people who want to be successful is often reinforced for students by their teachers, parents, other adults, and peers. When one considers, however, that only about a quarter of the jobs in the year 2000 will require a college degree, the importance of a thoughtfully planned and implemented youth apprenticeship program becomes all the more evident.

It is important to reiterate that a strong youth apprenticeship program does not preclude attending college following high school. To the contrary, because a student receives such a strong academic base, albeit at times delivered in a different format, he or she can qualify for a college program following high school. Students will have other choices too: they may opt for a technical training program offered through a community college, which would result in an associate's degree, or choose to work full-time, or they may combine these options and work part-time while attending school.

An additional benefit of the youth apprenticeship program is the students' opportunity to work side-by-side with adults who are trained to be their mentors/advisors. This exposure to adults who are neither teachers nor parents provides the students with valuable experiences, labeled by Professor Steve Hamilton of Cornell University as an "apprenticeship for adulthood."

The above information will have to be explicitly stated to the students, their parents, and, most probably to "regular" teachers. This is a novel way to complete high school and will have to be repeatedly sold to students and adults alike before it becomes an accepted part of a high school's offerings.

"As the principal employer of public school graduates, business should be involved in the process of defining the knowledge and skills required for students to be competitive in the workforce, and in establishing a smooth transition from education to work (including an appropriate blend of classroom and workplace experience)."

Business Role in State Education Reform, p.9.

The School's Role

- **Market the program.** Most schools use career fairs, open houses, direct mail, meetings with counselors, and letters to students and their families to market their programs. Students who are currently enrolled in or have completed the youth apprenticeship program are frequently the best marketers.

  It is important to market the program to younger students (i.e., seventh to tenth graders). They may be more responsive than older students for two reasons — first because they are not as likely as older students to have been pressured to consider college as the only "proper" path and second, because they are more likely to look up to and listen to older participating students.

- **Define the prerequisites for student participation.** Since this is a program that requires a high level of performance from students, the school should seek students who have the interest, aptitude, and willingness to abide by the expectations of the program. Some of these students may not have fared very well by the traditional standards of schooling, but youth apprenticeship may provide the incentive for them to excel.

- **Describe the expectations for the students as explicitly as possible.** Students should be fully aware of their responsibilities at school and at the workplace, their academic requirements, their schedules, and their work experiences.

The Employer's Role

- **Represent the business at career fairs and other school events to help recruit students to the program.** Workers "from the field" are valuable resources for stimulating interest in the program. They can answer questions and dispel misconceptions about the true nature of their occupations.
- **Assist in developing marketing materials.** This ensures that the technical aspects of the program are described accurately and fully represent the career options available to students.

The Intermediary's Role

- Assist in developing marketing materials.
- Organize presentations to students at career fairs, meetings of counselors, and other groups.

Student Counseling Issues

Integrating student counseling throughout the student's academic and technical training should be included in the goals for the employers and the schools. Responsibility for counseling rests primarily with the schools. Guidance counselors need to focus on the needs of all students, not just the college-bound students. Teachers and guidance counselors alike need greater exposure to the world of work, career possibilities for their students, and the labor demands of employers. To this end, one approach is to invite teachers and guidance counselors to workplaces to observe workers and meet with employers.

Guidance counselors should emphasize that a student's participation in the youth apprenticeship program does not foreclose any options for the student. The program is intended to be flexible. The student can still pursue college or further technical training if he or she chooses.

Some students may require some additional "hand holding" by adults in both learning sites — the workplace and the school — who are trained in basic counseling techniques. An especially successful aspect of the BankAmerica/Mission High School program in San Francisco has been the school's Business Resource Center. Two Center counselors — one an employee of the school, the other employed by a community organization and based at the school — act as mentors/advisors. They meet with the students frequently in the halls and in the Center, coordinate a business club, track the students' academic and work records, speak regularly with the students' teachers and bank personnel, and provide a strong overall support system for the students.

Staff Development Issues

"Separating 'learning to know' and 'learning to do' is dysfunctional. The sharp boundary between academic learning and education for work is an artifact of the industrial age. The assumption that they need to be separated for effective learning does not hold. Knowledge, skills, and their application are inseparable; there is no effective understanding of one without the other two."

Sue Berryman

The training of faculty, supervisors, instructors, and mentors is very important to a youth apprenticeship program. Since both educators and employers provide instruction and guidance to the students, both partners should assist in developing and delivering the training. Various organizations have developed materials for integrating academics with technical competencies. (See the list of Resources in the Appendices.)

All stakeholders need training. They must understand their individual roles in this expanded school-to-work model and its value to increasing the nation's productivity and, ultimately, everyone's quality of life.

- **Many education personnel** require exposure to the world-of-work outside their school building; their training will have to include site visits to the students' work-sites and discussions with their supervisors to ensure that they are up-to-date with the latest technologies and techniques. Being aware of what occurs at workplaces enables teachers to see the possible connections between their classroom lessons and the skills and knowledge required at the workplaces.

  School guidance counselors may have to be convinced of the benefits of a youth apprenticeship program for their students. They need training regarding the many occupational options that are available for their students in order to provide them with career guidance.

- Most **work-site supervisors** will need some assistance in how to evaluate on the job learning. It is important to make this as easy for supervisors and mentor/advisors as possible. Simple checklists certifying mastery of job skills are effective instruments for monitoring the youth apprentices' progress. This ensures consistent apprentice learning and reliable certification of skills.

Guidance counselors, student advisors/mentors, and work supervisors should maintain ongoing communication. Most likely, the educators and employers involved have not previously had to interact to the degree that a successful youth apprenticeship program requires. Being open to the very different organizational cultures involved in the partnership is necessary to ensure that the focus is on the program and not "turf" issues and parochial agendas.

Job Placement

The primary aim of youth apprenticeship is to assist young people in making the transition from school to good jobs. If after all the effort of planning, designing, and training, the graduates who want jobs don't end up with training-related employment, the program will have fallen short of its intention.

While it is impossible to predict the absolute availability of employment, a careful look at the labor market is imperative. From the outset, students should be given a realistic appraisal of the short- and long-term employment prospects. Of course if a business or industry does not currently have jobs to offer and does not expect job growth in the future, a youth apprenticeship program is probably not appropriate.

There are several issues regarding placement that an employer should consider before entering into a youth apprenticeship agreement:

Placement of graduates

The partners should develop a system for placing students with participating employers, or with other employers in training-related jobs. Designating a person as the "job developer" is a suggested approach. The job developer must be well acquainted with the students and the employers to ensure that the job placement will be appropriate and beneficial to both. In addition to informal, subjective judgments, the job developer should have access to standardized tests that can be helpful in making the best placement.

The role of the job developer is particularly important for those students who want to work full-time after completing high school. The job should be an extension of what the student has done in his or her youth apprenticeship program to enable the student to do his or her best work and progress to jobs requiring more skills and responsibility.

Employers may want to establish a consortium of companies within their industry to expand the job opportunities for students. This is particularly helpful when a company is experiencing a tight hiring situation because it allows students increased chances to work in their preferred occupational area. The job developer has to be aware of several employment options in the event that the student's primary employer is unable to offer full-time employment. This, obviously, is the advantage of having a consortium of employers from an industry.

Appendices

Resources

U.S. Department of Labor School-To-Work Project Grantees

U.S. Department of Labor Office of Work-Based Learning

Irene Lynn
Chief, Training Policy Unit
Office of Work-Based Learning
U.S. Department of Labor
200 Constitution Avenue, NW
Room N4649
Washington, DC 20210
(202) 523-0281

National Alliance of Business

Gary Moore
Director of Research
and Development
1201 New York Avenue, NW
Suite 700
Washington, DC 20005-3917
(202) 289-2917

Sears/Davea Project

Jocelyn Booth
Assistant Director
Davea Career Center
301 S. Swift Road
Addison, IL 60101
(708) 691-7581

BankAmerica Project

Cynthia A. Fisher
Vice President & Manager of
Education Program
BankAmerica
P.O. Box 37000
Unit #3135
San Francisco, CA 94137
(415) 241-3214

Maryland Project

John Hamilton
Administrator
Maryland Department of
Economic and Employment
Development
217 East Redwood Street
10th Floor
Baltimore, MD 21202
(301) 333-6975

Tech-Prep Plus Project

Mary Byrski
Tech-Prep Project Coordinator
Charles County Community
College
P.O. Box 910
LaPlata, MD 20646
(301) 934-2251

MechTech

Jim Richter
Administrator
Maryland MechTech, Inc.
800 South Rolling Road
Catonsville, MD 21228
(301) 455-4548

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Maryland's Tomorrow

Lynn McDonald
Special Projects Coordinator
Carroll County Maryland
Job Training Partnership
125 N. Court Street, Suite 201
Westminster, MD 21157
(301) 857-2693

Pennsylvania Youth Apprenticeship Program*

Jean Wolfe
Director
Box 5046
227 W. Market Street
York, PA 17405
(717) 843-2898

**Also a Jobs for the Future site.*

Los Angeles Unified School District

James Konantz
Project Director
644 W. 17th Street, Room 202
Los Angeles, CA 90015
(213) 765-3494

Electronic Industries Foundation

Vic Knorr
Program Manager
CEET Program, EIF
RD # 24, Box 751
York, PA 17406
(717) 252-1130

Boston Private Industry Council Project ProTech*

Lois Ann Porter, Project Director, Project ProTech
George Moriarty, Associate Director of Youth Programs
2 Oliver Street
Boston, MA 02109
(617) 423-3755

**Also a Jobs for the Future site.*

Jobs For The Future Assisted Sites

Richard Kazis
Director, Work-Based Learning
Jobs for the Future
1815 Massachusetts Avenue
Cambridge, MA 02140
(617) 661-3411

Broome County Youth Apprenticeship Demonstration Project

Steve Hamilton
Professor & Chair
Department of Human Development & Family Studies
Martha Van Rensselaer Hall, Cornell University
Ithaca, NY 14853
(607) 255-8394

Cambridge-Lesley Careers in Education

Larry Rosenstock
Executive Director
Rindge School of Technical Arts
459 Broadway
Cambridge, MA 02138
(617) 349-6751

Career and Occupational Awareness-Check into Health (COACH)

Tom Conor
Director, Career-Technical Education
Comstock Public Schools
301 North 26th Street, Box 369
Comstock, MI 49041
(616) 388-9484

Craftsmanship 2000

A. Wayne Rowley
Executive Director
616 South Boston
Tulsa, OK 74119
(918) 585-1201

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Oakland Health and Bioscience Academy

Patricia Anne Clark
Academy Co-Director
Oakland Technical High School
4351 Broadway
Oakland, CA 94611
(510) 658-5300

Pickens County Youth Apprenticeship Initiative

Dr. Mendel H. Stewart
Director of Vocational Education,
School District of Pickens County
1348 Griffin Mill Road
Easley, SC 29640
(803) 855-8150

Project A.L.I.V.E.: Pasadena Partnership Academies

Dr. John R. Porter
Director, Secondary Instruction
Pasadena Unified School District
351 South Hudson Avenue
Pasadena, CA 91109
(818) 795-6981

Roosevelt Renaissance 2000

Jim Wernsing
Project Coordinator, Technical
Careers Preparation Project
Roosevelt High School
6941 North Central Street
Portland, OR 97203
(503) 280-5138

Council of Chief State School Officers' New Career Paths Through Youth Apprenticeship Implementation Grants

Council of Chief State School Officers

Cynthia Brown, Director, Resource
Center on Educational Equity
Christopher Harris, Senior Project
Associate
One Massachusetts Avenue, NW
Suite 700
Washington, DC 20001-1431
(202) 408-5505

Project Directors

California New Youth Apprenticeship

Alan Weisberg
Project Director
Foothill Associates
230 Main Street
Nevada City, CA 95959
(916) 265-5671

Maine Youth Apprenticeship Center

Bill Cassidy
Project Director
Southern Maine Technical College
Fort Road
South Portland, ME 04106
(207) 767-5210

Minnesota

Bobbie Henrie
Director of Special Projects
MN Technology
111 Third Avenue South, Suite 400
Minneapolis, MN 55401
(612) 338-7722

West Virginia

Bill Wilcox
Project Director
Adult Education and JTPA
Capital Complex
Charleston, WV 25305
(304) 558-0280

Wisconsin

Maggie Burke
Project Co-Director
Education Consultant -Youth
Apprenticeship
Bureau for Vocational Education
WI Department of Public
Instruction
125 South Webster Street
P.O. Box 7841
Madison, WI 53707-7841
(608) 267-1056

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National Alliance of Business Technical Assistance Capabilities

The National Alliance of Business can provide technical assistance services to employers interested in beginning a youth apprenticeship program. Using its national and regional offices, the Alliance can help you:

- Organize your partnership with local educators
- Design the program with on-site technical assistance
- Conduct a staff development program to train supervisors and prospective mentors
- Enlist other companies to form a consortium of employers for the program
- Communicate with other businesses that are involved in youth apprenticeship through a peer-to-peer learning network
- Evaluate the progress and results of your youth apprenticeship program
- Develop and implement strategic goals and outcomes for the program
- Access research and data bases on youth apprenticeship issues and resources
- Obtain philanthropic and government funding
- Communicate with nationally recognized experts on youth apprenticeship

For more information on youth apprenticeship and technical assistance services, contact the National Alliance of Business office:

Gary Moore
National Alliance of Business
1201 New York Avenue, NW
Suite 700
Washington, D.C. 20005-3917
(202) 289-2917

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